

## CLAIMS:

1. A fluidized air bladder for use with a bedframe, the fluidized bladder comprising  
an outer wall,  
5 a diffuser having a convex surface cooperating with the outer wall to define a fluidized zone, and  
a fluidizable medium positioned in the fluidized zone, the convex surface of the diffuser providing air to the fluidized zone to fluidize the fluidizable medium.
- 10 2. The fluidized air bladder of claim 1, wherein the convex surface is substantially curved.
3. The fluidized air bladder of 1, wherein the diffuser is tube-shaped.
4. The fluidized air bladder of claim 1, further comprising another  
15 diffuser having a convex surface spaced apart from the convex surface of the other diffuser.
5. The fluidized air bladder of claim 1, wherein the diffuser cooperates with the outer wall to define a plenum adapted to receive pressurized air from a pressure source.
- 20 6. The fluidized air bladder of claim 1, further comprising another diffuser including a convex surface that cooperates with the first mentioned convex surface to define a concave surface.
7. The fluidized air bladder of claim 6, wherein the concave surface is substantially V-shaped.
- 25 8. The fluidized air bladder of claim 1, wherein the outer wall includes a plurality of laterally spaced-apart apertures adapted to receive pressurized air from a pressure source.
9. A support surface apparatus for use with a bedframe having a first deck section and a second deck section configured to move relative to the first  
30 deck section, the support surface apparatus comprising  
a fluidized air bladder including an outer wall, a diffuser cooperating with the outer wall to define a fluidized zone, and a fluidizable medium positioned in

the fluidized zone, the diffuser providing air to the fluidized zone to fluidize the fluidizable medium, and

a mechanism adapted to move the diffuser relative to the bedframe to maintain fluidized of the fluidizable medium.

5                   10.     The support surface apparatus of claim 9, wherein the mechanism is adapted to rotate the fluidized air bladder relative to the second deck section as the second deck section moves relative to the first deck section.

                  11.     The support surface apparatus of claim 9, wherein the mechanism includes a link adapted to be coupled to the first deck section.

10                  12.     The support surface apparatus of claim 9, wherein the mechanism includes an inflatable bag configured to deflate upon movement of the second section of the deck.

                  13.     A support surface apparatus for use with a bedframe having an articulating deck including a deck section configured to move from a first  
15 substantially horizontal position to an inclined position, the support surface apparatus comprising

                  a fluidized bladder including an outer wall, a diffuser apparatus cooperating with the outer wall to define a fluidized zone, a fluidizable medium positioned in the fluidized zone, the diffuser apparatus providing air to the fluidized  
20 zone to fluidize the fluidizable medium, and

                  an air supply configured to adjust the flow of air through portions of the diffuser apparatus as a result of movement of the deck section of the bedframe.

                  14.     The support surface apparatus of claim 13, wherein the diffuser apparatus includes a first diffuser and a second diffuser and the air supply is  
25 configured to shift a portion of the air flow provided to the diffuser apparatus between the first and second diffusers as a result of movement of the deck section of the bedframe.

                  15.     The support surface apparatus of claim 14, wherein the air supply provides equal amounts of air to the first and second diffusers when the deck  
30 section of the bedframe is in a horizontal position and provides more air to the first diffuser than to the second diffuser when the deck section of the bedframe is in an inclined position.

16. The support surface apparatus of claim 14, wherein the first diffuser provides air in a first flow path to the fluidized zone of the air bladder, the second diffuser provides air in a second flow path to the fluidized zone of the air bladder, the first flow path is substantially vertical when the deck section is in the substantially horizontal position, and the second flow path is substantially vertical when the deck section is in the inclined position.

17. The support surface apparatus of claim 13, wherein the air supply includes a source of pressurized air and a valve configured to adjust the flow of air to portions of the diffuser apparatus as a result of movement of the deck section of the bedframe.

18. A support surface apparatus for use with a bedframe having an articulating deck including a deck section configured to move from a first substantially horizontal position to an inclined position of at least 15°, the support surface apparatus comprising

an outer wall defining an interior region having a fluidized zone, a fluidizable medium positioned in the fluidized zone, and means for providing air to the fluidized zone to fluidize the fluidizable medium, the providing means being configured to maintain at least a portion of the air flow in a substantially vertical direction through a central portion of the fluidized zone when the deck is in the inclined position.

19. The support surface apparatus of claim 18, wherein the providing means includes a plurality of diffusers that cooperate with the outer wall to define the fluidized zone and the plurality of diffusers are configured to provide air to the fluidized zone.

20. The support surface apparatus of claim 18, wherein the providing means includes a diffuser having a convex surface configured to provide air to the fluidized zone.

21. The support surface apparatus of claim 18, wherein the providing means includes a diffuser that cooperates with the outer wall to define the fluidized zone and a mechanism configured to rotate the diffuser relative to the deck section as the deck section rotates.